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Liver Dystrophy Associated with Coal Tar Pitch Poisoning in the Pig

BY

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LIVER damage in the pig has been reported on a number of occasions under a variety of conditions. In 1887 Semmer, in Russia, reported under the title of enzootic hepatitis a condition associated with liver damage thought to be due to a coccus infection. A liver disease of pigs was also described by a number of European workers, for example, Kleinpaul (1907) and Braedel (1908).

Cohrs (1929) proposed the name toxic liver dystrophy for the condition and he considered that the liver damage was due to a toxin carried to the liver in the portal blood. Bolle (1929a, b) associated cases of liver damage with the feeding of rancid cod liver oil emulsions. Nusshag (1930), however, was unable to produce the disease even by using large doses of cod liver oil *per os*. In some of his cases Nusshag incriminated damaged fish meal and in certain cases he considered that swine fever virus, though not the actual cause, promoted the appearance of the disease.

Bolle (1936) described further experiments in which he produced evidence as to the rôle played by cod liver oil in the production of hepatic damage. Tiedge (1937) also incriminated cod liver oil particularly when administered as an emulsion. Nicolaus (1937 and 1938) investigated the part played by cod liver oil. He used a basal diet composed of potatoes, oatmeal and bran and was able to reproduce the disease using both rancid and fresh oil. He considered that two main factors operated in producing the disease; *viz.*, a lowered glycogen content of the liver and the presence of metabolic by-products for de-toxification.

McGowan (1924) described liver changes which he associated with circulatory disturbances consequent on an attack of nutritional anaemia. Naftalin & Howie (1949), however, described essentially similar changes but attributed these to a derangement of hepatic circulation as the result of prolonged exposure to excessive cooling.

Graham, Hester and Henderson (1940) described a rapidly fatal disease in pigs accompanied by toxic degeneration of the liver. These authors showed that the condition arose through the ingestion of parts of clay pigeon targets composed mainly of coal tar pitch, and they reproduced the disease by feeding this clay pigeon material or commercial pitch preparations to healthy pigs.

Obel (1953) discussed the cause of liver damage in pigs as seen in Scandinavian countries and showed the close affinity of the condition and the liver injury in rats fed a diet deficient in sulphur containing amino acids, and vitamin E. This author reproduced essentially the same condition in pigs by feeding a diet comprising yeast protein and excess cod liver oil. Obel considers it probable that toxins absorbed from the intestine initiate the liver injury. These cause damage in a liver in which the detoxicating properties are diminished by a deficiency of sulphur containing amino acids and vitamin E. Lack of oxygen due to reflex circulatory disturbances in the liver also contributes to the development of the liver lesion.

Symptoms

Mr. R. W. Cassells, M.R.C.V.S., consulted us regarding a disease problem among store pigs. The farm in question brought in store pigs about 12 to 14 weeks old and finished them as baconers. Pigs had been kept for several years in a variety of converted buildings with varying success. A short time before the present trouble a new piggery had been built incorporating modern ideas of heat conservation. The pigs in question had been housed in the new piggery six weeks at the time of examination. When first moved into the piggery they were all well-grown thriving stores 12 to 14 weeks old, and 14 days later a progressive unthriftiness developed.

The several lots of pigs in this house were very uneven; the best being reasonably good but many were small, emaciated, pot bellied runts. Appetite generally was poor, coughing widespread but diarrhoea was not seen. Four pigs had died during the previous 10 days.

In view of the widespread coughing and the time of the year—mid-winter—pneumonia was considered a possible factor. Though the house was of good type too few pigs were being kept in each pen with the result that sufficient heat was not being generated and maintained. It was clear, however, from the history and appearance of the pigs that such a diagnosis was not sufficient to account for all the circumstances.

Four badly affected pigs were obtained for *post-mortem* examination. In all cases there was marked enlargement of the liver. The surface was pitted, the lobules very prominent and the whole organ extremely friable. Fibrinous strands were found on the liver, the cut surface of which presented a mottled mosaic-like pattern. These changes were particularly well marked on the diaphragmatic surface in the vicinity of the hepatic veins. The abdominal cavity contained a varying quantity of blood-stained fluid and there was an excess of straw coloured fluid in the pleural cavity. A pyogenic pneumonia was found in two carcases and in one of these there was a well marked pericarditis. The lungs were normal in two cases and in one of these a marked cystic condition of the kidneys was found. *C. pyogenes* was isolated from the pneumonic lungs but cultures from liver, spleen and heart blood were uniformly negative. From these findings it was evident that the pneumonia was not the main problem and that the as yet unknown factors associated with the liver damage were probably the major cause of the syndrome exhibited by the ailing pigs.

The circumstances surrounding the present outbreak were investigated further. The pigs housed elsewhere on the farm were receiving the same mixed feed and were healthy, and the trouble was restricted to the pigs in the new house. It was discovered that in an attempt to provide a warm type of flooring old railway sleepers were used and these were levelled off with pitch. Examination of the floor showed that the pigs were eating the pitch and it was considered that this was the probable toxic factor associated with the liver damage.

Experiments with Pitch

It was decided to test the effect of feeding the pitch to two groups of healthy pigs. Group A contained three pigs about 60 lb. in weight, and these had been growing and thriving well. A quantity of pitch was ground up and a small quantity added daily to the food. Over a period of 28 days these three pigs received 2 lb. of pitch. No marked symptoms were produced. The addition of the pitch did interfere with appetite and the pigs all tended to be constipated. At the end of the 28 day period the pigs were killed and examined. In all cases enlargement of the liver was seen together with a varying degree of liver damage essentially similar to that shown in the original cases. Group B contained two pigs weighing about 40 lb. each. These were not thriving as well as those in Group A. Over a period of 12 days these received 4 oz. of pitch each. Appetite again was capricious and constipation marked. Some loss of weight was evident. These pigs were killed and both showed the same type of liver damage. In both cases the liver lesions were very extensive and there was in both a marked excess of peritoneal fluid.

Histological examination of the affected liver tissue from both field and experimentally induced cases showed similar changes, *viz.*, a marked central necrosis of the lobules which, in some cases, had completely destroyed the normal liver cells. These liver changes had a somewhat patchy distribution with badly affected and normal lobules often occurring side by side.

The factor or factors in the pitch responsible for the lesions were not identified. It may be assumed that toxins absorbed from the intestines reached the liver via the portal circulation. As already discussed, the ability of the liver to render toxins harmless is influenced by a number of factors, for example, its glycogen content, the availability of sulphur containing amino acids, particularly methionine, and the presence of vitamin E. Lack of oxygen arising from reflex disturbances of the circula-

tion may also promote liver damage. Some such factors as these may have been responsible for varying susceptibility of the pigs to the ingestion of pitch. The pigs in Group A received approximately 0.38 oz. per day over a period of 28 days without producing critical symptoms. The two pigs in Group B received 0.33 oz. per day for 12 days, and though the total intake of pitch was much less, considerably more extensive lesions were produced in these pigs (Group B) compared with the changes seen in the livers of Group A.

Summary

A condition in pigs is described associated with disturbances of appetite, progressive loss of weight and death. The characteristic lesion found at *post-mortem* examination was a toxic degeneration of the liver. The pigs in question had been eating pitch from the floor of the piggery and the same pitch fed to experimental pigs produced similar liver changes.

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CLINICAL COMMUNICATION

Hyperketonaemia and Foetal Death in the Sheep

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Introduction

HYPERKETONAEMIA is a clinical sign that usually can readily be noted. From the available evidence, it would appear that in the pregnant ewe this hyperketonaemia is the result of malnutrition or starvation, with listerella encephalitis as a possible exception (Olafson, 1940). On this basis, the following classification of ovine diseases in pregnancy, that are associated with hyperketonaemia as a clinical sign, may be tentatively suggested as a convenient working hypothesis :—

A. Clinical Conditions in which Starvation or Malnutrition is the Primary Aetiological Factor.

1. *Nutritional Pregnancy Toxaemia*: following a progressive shortage of available food, mainly of a quantitative nature but possibly associated sometimes with a qualitative deficiency. This is therefore more commonly seen in ewes that are in moderate or poor condition.
2. *Starvation Pregnancy Toxaemia*: following a sudden and complete deprivation of food, as may occur in severe weather.

B. Clinical Conditions in which Starvation is Probably Secondary.

1. *Idiopathic Pregnancy Toxaemia*: overfat ewes, often with lack of exercise. Adequate food available and no clear cut explanation for the failure to eat.
2. *Moss Staggers*: a hypocalcaemic condition differing from acute hypocalcaemia (lambing sickness) in that the blood ketone body level is raised (Lyle Stewart & Ponsford, 1939; Lyle Stewart, 1948).

It would seem reasonable to suppose that, in addition to these categories, a fasting ketosis might be associated secondarily with a variety of clinical conditions of the ewe in late pregnancy causing inappetence or the prevention of feeding. Although a number of miscellaneous observations suggest that this does happen, no particular disease has been shown to occur sufficiently often in conjunction with hyperketonaemia to make this point one of likely importance in differential diagnosis.

However, Sampson & Boley (1940a) have drawn attention to the possibility of confusion between impending or early foetal death and "Pregnancy Toxaemia." Unpublished opinion from this country, on the other hand, suggests that hyperketonaemia is not generally associated with cases of premature birth or birth of recently dead or weak lambs, since usually ewes show few clinical signs and abnormal births come as a surprise. The exceptionally heavy pre-natal and post-natal mortality in lambs in 1950-51 brought this point into prominence and a number of pregnant sheep were examined then with a view to providing any clinical evidence for the connection that may exist between the conditions associated with hyperketonaemia and foetal death.

The findings have been considered in relation to the classification of these hyperketonaemic conditions already advanced. Normal values for blood glucose

and ketone body levels are presented for comparative purposes.

Methods

The reducing substances in blood (considered as glucose) were determined by Somogyi's (1945) method. The ketone body concentrations were determined by a modification (Pugh, 1953) of the method of Greenberg & Lester (1944) and have been expressed throughout this communication as mg. acetone measured per 100 ml. jugular vein blood.

Materials and Results

(A) Normal Blood Values in Pregnant Ewes

Materials

Jugular blood samples were obtained from ewes of different ages, mainly Suffolks or Suffolk Crosses, at different stages of pregnancy. In most cases, ewes were housed and fed a daily ration of moderate quality consisting of 3 lb. chaffed hay and 1 lb. crushed oats, which was rarely fully consumed.

Results

Values for blood reducing sugar and ketone body concentrations of clinically normal ewes during pregnancy are given in Table I. The mean values at four different periods are shown, the period 128 days-term being the period in which field cases of ketosis occur. In addition to showing the values for single and twin pregnancies, glucose and ketone body values are presented for the mean of these two groups at the end of pregnancy since, in practice, the differentiation of single from multiple pregnancies is often difficult. This figure would correspond to the mean figure for a flock producing 157 lambs born per 100 ewes. It will be seen, therefore, that in a flock having such a lambing percentage, which is comparable to many commercial flocks, 95 per cent. of the ketone body values of normal non-fasting pregnant ewes in the last three weeks of gestation will fall between 0.9 and 5.1 mg. per 100 ml. Though strictly speaking, these figures can be applied only to ewes managed in exactly the same way as those from which the samples were taken, it is not considered likely that the figures will differ greatly from these under normal systems of husbandry.

Sampson & Boley (1940a) found mean blood glucose and ketone body levels of 42.88 ± 1.43 mg. per 100 ml. and 1.53 ± 0.31 mg. per 100 ml. respectively, for ewes in late pregnancy carrying one lamb; and values of 38.21 ± 2.07 mg. per 100 ml. and 3.28 ± 0.63 mg. per 100 ml. for those with twin foetuses.

Under the same conditions, 95 per cent. of the normal blood reducing sugar values will be between 30 and 50 mg. per 100 ml. Both the figures found for the pregnant and the non-pregnant sheep are in very close agreement with the findings of Sampson & Boley (1940a) and of Reid (1950), who has reviewed the earlier reports of blood sugar values in the sheep.

(B) Blood Values in Clinical and Experimental Ketosis

Materials

Figures are given for blood ketone body and reducing sugar concentrations in the following animals:

(a) six cases of Idiopathic Pregnancy Toxaemia.
(b) eight cases of experimentally induced starvation ketosis (Starvation Pregnancy Toxaemia).
(c) eight cases in which pathological changes had occurred in the placenta and foetuses. No bacterial cause (see Stamp, 1950: McFarlane, Salisbury, Osborne & Jebson, 1952) for these changes was found, nor could the

Table I

Blood Reducing Sugar and Ketone Body Concentrations in Non-Pregnant and Pregnant Ewes.

Period of Pregnancy (days)	No. of Lambs	Mean day of gestation for the group	No. of Ewes in group	Blood Glucose level (Whole blood) (as mg. reducing sugar/100 ml. Jugular blood).		Blood ketone body level (as mg. acetone measured/100 ml. Jugular blood).	
				Mean value ± standard error	Range	Mean value ± standard error	Range
0	–	–	74	44±0·9	28–69	1·2±0·05	0·5–2·5
0–100	1	67	6	39±0·81	36–41	1·2±0·17	0·6–1·4
	2	73	10	39±1·44	35–51	1·1±0·14	0·6–2·0
101–127	1	111	6	41±1·51	36–46	1·4±0·2	0·9–2·2
	2	112	10	32±1·43	26–36	2·3±0·32	1·4–4·6
128-Term	1	139	12	43±3·34	31–69	2·7±0·82	1·0–9·7
	2	137	16	38±1·9	27–54	3·3±0·37	1·1–5·8
	Mean 1 & 2	138	28	40*±1.81	27–69	†3·0±0·39	1·0–9·7

(Standard deviations *9·6 mg./100 ml. †2·06 mg./100 ml.).

elementary bodies of Enzootic Abortion be demonstrated* (Stamp, McEwen, Watt & Nisbet, 1950).

(d) ten cases infected with the virus of Enzootic Abortion.

Results

(a) *Ewes with Idiopathic Pregnancy Toxaemia*

The inclusion of the six hyperketonaemic ewes in this group has been based upon the arguments advanced earlier for the possible differentiation of conditions associated with ketosis (Pugh, 1953). It was pointed out that information is still inadequate to assert that Idiopathic Pregnancy Toxaemia is a definite and separate entity from those two types in which an aetiological association with nutrition has been more convincingly demonstrated (Roderick & Harshfield, 1932: Hopkirk, 1934: Roderick, Harshfield & Hawn, 1937: Fraser, Godden, Snook & Thomson, 1938, 1939: Groenewald, Graf, Bekker, Malan & Clark, 1941: Underwood, Robinson & Conochie, 1942: Sampson, 1947: Parry, 1950: Phillipson, 1950). The six ewes reported upon here did not fall into either of these two more clearly definable groups.

In Table II the levels of jugular ketone bodies and glucose are shown. The ketone level in all the sheep is elevated and ranges from 17.6 to 32.1 mg. per 100 ml.: hypoglycaemia is also evident, the highest value in this group being 25.5 mg. per 100 ml. In these cases the lambs were all alive, even in one of the ewes which was moribund.

The foetal heart beat could be heard more easily in this group than in normal non-fasted ewes.

In all these ewes, pronounced nervous signs were seen (Parry, 1950).

* Examinations carried out by Mr. H. I. Field.

TABLE II
DATA RELATING TO EWES WITH IDIOPATHIC PREGNANCY TOXAEMIA

Case No.	No. of lambs *in utero*	No. of lambs alive at time of sampling*	Ketone Bodies (as mg. acetone per 100 ml. jugular blood).	Mg. Glucose per 100 ml. Jugular blood.
1	2	2	17·6	25·5
2	3	3	23·8	14·5
3	3	3	25·5	24·3
4	2	2	25·5	20·0
5	3	3	27·8	23·0
6	2	2	32·1	10·5

*Determined by autopsy immediately after sampling.

(b) *Ewes with experimentally induced fasting ketosis*

It may be suggested that experimentally induced fasting ketosis can be considered as being similar to Starvation Pregnancy Toxaemia.

Eight ewes in good condition, and having previously been maintained on a high plane of nutrition, were deprived of food for periods up to 144 hours during the last 10 days of gestation. In Fig. 1 the jugular ketone body levels have been plotted against the length of time of starvation.

From the data, the regression of ketone body level on time was calculated: this shows that after six days of starvation the ketone body level reaches 15 mg. per 100 ml., whereas the starving of eight non-pregnant ewes results in very little rise in the ketone body level (Fig. 2) (*cf.* Sampson & Boley, 1940b).

In three of the pregnant ewes, glucose determinations were carried out: by 72 hours, the level had fallen to 19, 14 and 11 mg. per 100 ml., but fell no lower during the following 72 hours of fasting. It has been shown that a pronounced fall in the blood

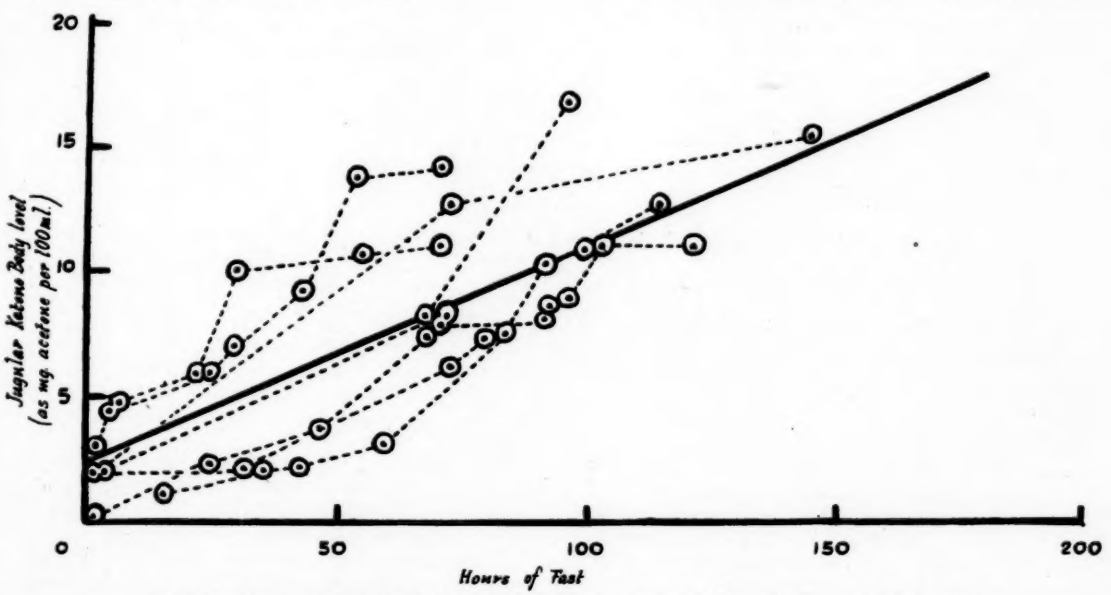

FIG. 1.—Effect of fasting on the blood ketone body level of eight ewes during the last 10 days of gestation.

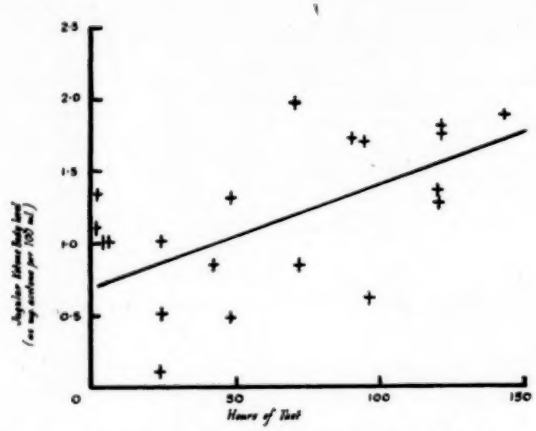

FIG. 2.—Effect of fasting on the blood ketone body level of eight non-pregnant ewes.

sugar level of the sheep occurs on fasting only if the animal is pregnant (Allcroft & Strand, 1933: Fraser *et al.*, 1939: Sampson & Boley, 1940b: Reid, 1950).

There was no significant difference in weight losses between the pregnant and the non-pregnant ewes: both groups lost about 2½ per cent. of their initial weight per day, although since the pregnant animals were slightly heavier the absolute weight loss tended to be rather higher than in the non-pregnant group. Among the pregnant animals, no relationship was apparent between the loss of weight of individual sheep and the ketone body level reached in the same animal.

Again in this group of well-fed animals the foetuses were all alive at the end of the period of starvation. Since sheep under field conditions may be surmised as starving for longer periods than in this investigation, caution must be exercised in deducing that the foetuses of well-fed sheep survive under conditions of more prolonged starvation.

In contradistinction to the findings in the cases of Idiopathic Pregnancy Toxaemia, no nervous signs were seen in these fasting ewes.

Neither in this group nor in the previous group of six ewes was there anything seen macroscopically to suggest that there was any abnormality of the placenta.

(c) *Ewes with foetal and placental pathological changes*

In the third group of eight multigravid ewes, in which diffuse foetal and placental macroscopic pathological changes were observed, estimations were carried out for ketone bodies and glucose, and are shown in Table III. The ewes marked with an asterisk were clinically in an advanced state of illness.

No histological examinations were made, but such changes as were noted macroscopically were considered to be probably of putrefactive origin, rather than due to infection. This suggestion is supported by the fact that attempts to demonstrate a bacterial agent failed as did attempts to demonstrate elementary bodies. There was no evidence to suggest that any of the more dramatic abuses of nutrition could be incriminated (*e.g.*, Warwick, Turk & Berry, 1946: Curnow, 1948: Cunningham, 1951).

In this group, all the animals showed signs of illness and attention must be drawn therefore to the fact that, for this very reason, the cases are not truly representative of conditions associated with macroscopic placental changes in which the majority of sheep exhibit no obvious clinical departure from normal.

TABLE III

DATA RELATING TO EWES IN WHICH MACROSCOPIC PLACENTAL CHANGES HAD OCCURRED

Case No.	No. of lambs *in utero*	No. of lambs alive at time of sampling*	Ketone bodies (as mg. acetone per 100 ml. jugular blood)	Mg. glucose per 100 ml. jugular blood
7*	2	0	0·6	50·0
8*	2	0	2·6	76·0
9*	2	0	3·5	25·5
10*	3	0	22·7	70·0
11	3	0	22·0	34·5
12*	3	1	23·0	19·0
13	2	2	20·0	24·0
14	2	1	17·5	13·0

* Determined in cases 7 to 11 by autopsy immediately after sampling. In cases 12 to 14 blood samples were taken immediately before abortion.

In five of the ewes (Cases 7 to 11) all the lambs died *in utero*: the blood sugar levels were normal or higher than normal in four of these five cases. On the hand, in the three ewes (Cases 12 to 14) where one lamb at least was alive the blood sugar concentration was definitely lower than normal. The findings in cases 12 to 14 differ from those of Holmes (1953) who expresses the opinion that "Where at least one lamb survives *in utero* . . . . the ewe shows biochemical and also clinical recovery from the disease."

A reverse trend is seen in the ketone body level. Two cases (10 and 11) are exceptions to this for, while the blood sugar is in the one case normal and in the other case higher than normal, the ketone body levels are still high.

These findings in general conform to the stated fact that following parturition or removal of lambs by caesarean section (Benesch & Wright, 1950: Holmes, 1953) recovery from the disease occurs (see Dimock, Healy & Bullard, 1928: Roderick & Harshfield, 1932: Dimock, Healy & Hull, 1934: Elder & Uren, 1940: Rowlands, 1952), the ketone body level falls and the blood glucose values return to their normal level (Sampson & Hayden, 1936: Holmes, 1953). The rate of fall in the ketone body level varies slightly, but in general two to five days elapse before a normal level is reached. In Fig. 3 the effect of abortion on the ketone body and glucose levels of cases 12, 13 and 14 is shown.

Pronounced nervous signs were seen in only one animal of this group (Case 11): they were seen in all cases in the first group, but none of the animals

that were starved experimentally (*cf.* Dayus & Weighton, 1931 : Fraser *et al.*, 1939 : Clark, Groenewald & Malan, 1943).

(d) *Ewes affected with Ovine Enzootic Abortion.*

Foetal death and placentitis have been described following a specific virus infection of sheep (Stamp *et al.*, 1950 : Littlejohn, 1950). These cases are reported here briefly because if Enzootic Abortion is associated with ketosis, either because of placentitis or anorexia, the condition should be considered in the differential diagnosis of hyperketonaemic conditions. In particular both Stamp *et al.* (1950) and Littlejohn (1950) have drawn attention to the fact that ewes, prior to abortion, are often in poor condition.

Ewes, accordingly, were infected with the virus of Enzootic Abortion to give answers to the following clinical questions :

1. Does the placentitis caused by Enzootic Abortion result in a rise in the blood level of ketone bodies?
2. Does a fasting ketosis develop in Enzootic Abortion?

Materials

Virus of Ovine Enzootic Abortion (kindly provided by Dr. Stamp and passaged by Dr. Chu), was passaged through hen eggs; 2 ml. of the supernatant fluid from a 1 per cent. yolk sac suspension in broth, centrifuged at 2500 r.p.m. for five minutes, were injected intravenously and 2 ml. subcutaneously into 10 cross-bred ewes ranging from 81 to 95 days pregnant.

The conceptual date of seven out of the 10 ewes was known. The ewes were maintained at grass until 10 days before injection when they were brought in and fastened individually so that food intake could be measured. The diet consisted of a daily ration of 2 lb. hay and 3 lb. of a mixture of equal parts of oats and linseed cake, all of good quality. The ewes, which were in poor condition at the beginning, improved considerably during the course of the experiment and were fat when they aborted.

Determinations of the jugular level of ketone bodies were carried out at regular intervals from the time of the virus injection until after abortion. In most cases, blood samples were obtained within 12 hours of the ewes aborting.

Results

All the ewes aborted at varying periods ranging from 14 to 43 days after injection (see Table IV), and the virus was recovered from the placentae of the four ewes in which this was tried. Out of 19 lambs born, only two survived, though a further four were born alive : with the exception of two cases, all the lambs appeared, on a weight and measurement basis, to be normally developed for the time of gestation at which they were aborted (see Table IV). The live lambs were born in the ewes in which abortion occurred closest to the estimated date of parturition.

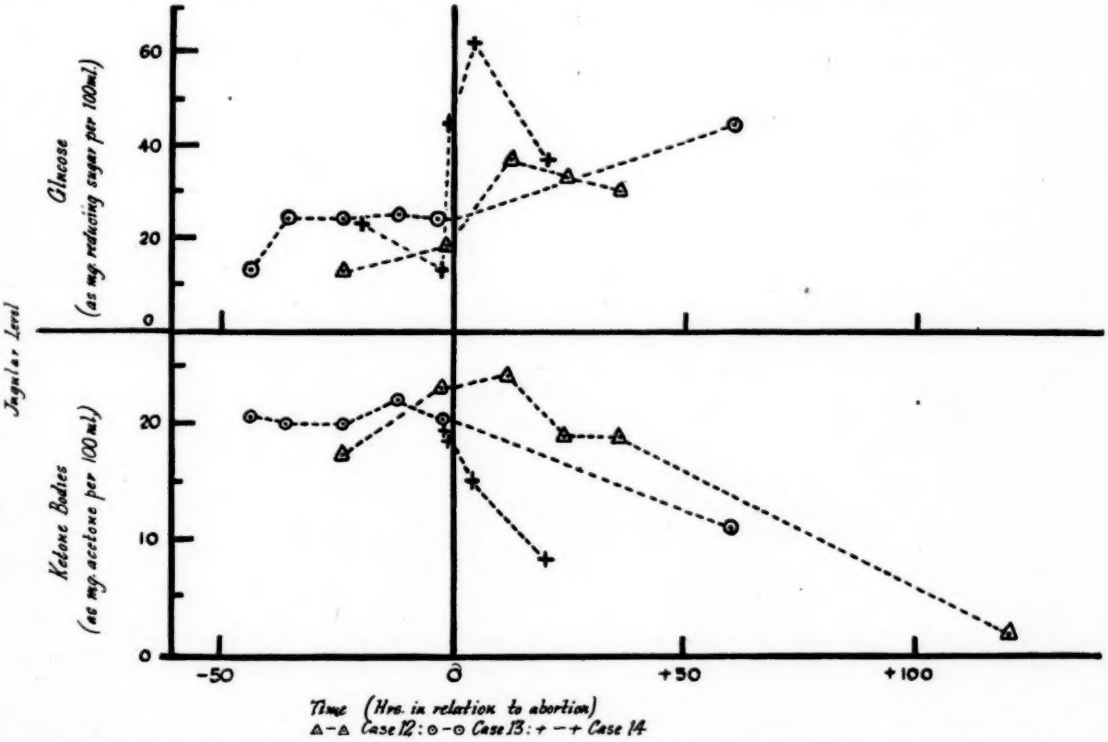

FIG. 3.—Ketone body and glucose levels in relation to abortion in three ewes with intrauterine pathological changes.

In three ewes only were premonitory signs seen: in two a white vaginal discharge was seen for a few hours before aborting very premature twin foetuses whose combined weight for each ewe was 6¼ and 5½ lb. (These were the ewes Nos. 9 and 10 whose conceptual dates were not known.) The third ewe (No. 2) had a poor appetite for five days prior to aborting twin lambs: one was dead and the other died within five minutes. In this ewe the ketone body level rose from 2.6 mg. per 100 ml. on the 120th day of gestation and within the first 24 hours of appearing ill, to 6.4 mg. per 100 ml., on the 125th day, two hours after she had aborted: this does not suggest that the viral placentitis exaggerates a developing ketosis.

With this sole exception, none of the infected ewes lost their appetite either before or after abortion and in no case was there any rise in the ketone body level: the highest recorded value was only 2.9 mg. per 100 ml. in ewe No. 7, 11 days before abortion at the 134th day of gestation. The highest ketone body value recorded in each ewe is shown in Table IV.

TABLE IV

DATA RELATING TO TEN PREGNANT EWES INJECTED WITH THE VIRUS OF ENZOOTIC ABORTION

Ewe No.	Time of Abortion		No. of lambs	No. of lambs born alive	Highest ketone body level (mg./100 ml.) recorded after injection
	Days after injection	Days before lambing due (150 days)			
1	14	27	2	0	1·2
2	32	16	2	1	6·4
3	43	11	2	2	1·7
4	29	19	2	0	2·1
5	35	17	2	1	2·2
6	30	23	2	0	1·3
7	43	13	2	1	2·9
8	34	—	1	1	1·7
9	38	—	2	0	2·0
10	39	—	2	0	2·3

The average time of abortion in these ewes was 18 days before term. Although accurate information is not available concerning the earliest date of pregnancy when ketosis can develop, clinical cases of "Pregnancy Toxaemia" have been reported as early as three to four weeks before parturition (Elder & Uren, 1940: Rowlands, 1952: Holmes, 1953). It does not seem likely then that the failure of ketosis to appear can be attributed to the particular time of pregnancy at which abortion occurred. The placentae aborted did not resemble macroscopically those seen in the ewes of Group (c) (Cases 7 to 14). In addition, abortions in the experiment occurred without or with very few premonitory signs and there appeared to be no tendency to retain the foetuses as occurred with the field cases of Group (c). A tendency to retain the foetuses after death is also apparent from protocols of the experiments on fasting ketosis reported by Clark *et al.* (1943) and from field cases of Enzootic Abortion (Stamp *et al.*, 1950: Littlejohn, 1950).

The first point to which attention must be drawn is the fact that only one dose rate of virus was used to infect the ewes (McEwen, Littlejohn & Foggie, 1951), and the disease reproduced appeared to differ in its manifestations from that reported when occurring naturally. In addition, induction of infection was carried out at only one stage of pregnancy.

With these stipulations in mind, answers can be given for the limited objective of the investigation.

Firstly, there was no rise in the ketone body level in any ewe which could be attributed to placentitis.

Secondly, in one case only (No. 2) was the appetite of the ewe adversely affected and a small rise in the ketone body level occurred before abortion.

Although the experimental infection with the virus does not reproduce all the features of the natural disease, it is of interest that these experimental results agree with the field findings that the "check," which a minority of ewes may show for a week or two before abortion, is not sufficiently severe to cause any real degree of inappetence.

Discussion

In general, most investigators of "Pregnancy Toxaemia" give the opinion that the lambs *in utero* are alive and of normal size, and that no abnormality of the placenta or membranes occurs (M'Fadyean, 1924: Dimock *et al.*, 1928: van Rensburg, 1931: Roderick & Harshfield, 1932: Dimock *et al.*, 1934: Parry, 1950). The six cases of Idiopathic Pregnancy Toxaemia reported upon in this communication agree with these findings. In addition, in the eight cases of experimental Starvation Pregnancy Toxaemia the uterine contents were normal and the lambs alive. Since no cases were observed that had fasted for more than six days, no opinion can be given on the effect of longer periods of starvation. Nevertheless, it seems probable, that in Idiopathic and Starvation Pregnancy Toxaemia, conditions in which there is no previous history of malnutrition, the foetuses are alive.

On the other hand, in the third type of "Pregnancy Toxaemia"—the Nutritional Pregnancy Toxaemia—the low plane of nutrition occurring before fasting has also an effect upon the survival of the foetus (*cf.* Barcroft, 1946). Dayus & Weighton (1931) consider that the lambs are often dead though well developed (see also Holmes, 1953). Leslie (1931) has reported a high incidence of dead or weak lambs at birth or dead lambs *in utero* as a not uncommon accompaniment to a high incidence of "Pregnancy Toxaemia": he considers that they are allied conditions of nutritional origin, and Sampson & Boley (1940a) share a similar opinion. The view has also been expressed by Grieg (1936) that the act of abortion can, with comparative ease, be induced by a number of factors involving acute metabolic disturbance. The work of Thomson & Thomson (1949) throws light on this question, and gives support to the classification of ketonaemic states already formulated. They showed that in a group of 22 ewes bearing twin lambs and maintained on a low plane of nutrition, six developed signs of

toxaemia late in pregnancy. In this group there was a 32 per cent. stillbirth rate and a high neo-natal mortality (see also Fraser *et al.*, 1939: Underwood & Shier, 1942). The protocols of the experiments of Groenewald *et. al.* (1941), where sheep were maintained on a poor diet, also suggest that there were intra-uterine changes in more of the poorly fed ewes, when subjected to starvation, than in the better fed ewes: in addition, they report that five ewes aborted out of a group of eight poorly fed experimental animals.

The cause of foetal death is unknown in the ewes (Group (c)) reported in this communication since no infective agent could be demonstrated and other non-nutritional causes of foetal death (*cf.* Huggett & Pritchard, 1945: Walker & Matthews, 1949: Fouracre Barns, Lindan, Morgans, Reid & Swyer, 1950: Boyd & Hamilton, 1950: Browne, 1950) have not been widely studied in sheep (Calisti, 1950). The cases (7 to 14) forming one group have in common the finding of pathological changes affecting the foetuses and placentae. These changes might occur as a result of poor nutrition of the ewe before fasting (Nutritional Pregnancy Toxaemia), or from abnormal nutritional conditions, or in fasting for more prolonged periods than have been investigated (Starvation Pregnancy Toxaemia). It is uncertain whether complete starvation of the well nourished ewe results in death of the foetus before death of the mother, though it may be reasonable to suggest that the length of the period of starvation, as well as the prior nutrition of the ewe, plays a part in foetal survival. The evidence in the cases 7 to 14 was insufficient to suggest which, if any, of these possibilities was the likely reason for the pathological changes seen.

It does appear highly probable that when there are no foetuses alive, the ketone body level falls and the blood glucose level returns to normal despite a continuing failure to eat (see also Clark *et al.*, 1943: Holmes, 1953), a finding that has been shown experimentally to occur also in the guinea-pig (Goodwin & Pugh, unpublished data). This conclusion concerning the ketone body level is in agreement with the opinion of Sampson & Boley (1940a) who state that "the ewe that bears a dead lamb in the uterus is usually not found to have ketosis—although the condition may have been present prior to the death of the foetus." Groenewald *et al.*, (1941) also report a case of special interest where the blood ketone body values in a fasted ewe were followed for a period before abortion and show a fall before this occurred (Table V). In three cases reported by Clark *et al.* (1943), a return to normal or higher than normal blood sugar levels was seen in fasting ewes from which, subsequently, dead lambs were removed.

TABLE V

BLOOD KETONE BODY LEVEL (mg. Acetone/100 ml.) IN A PREGNANT EWE BEFORE ABORTION (after Groenewald et al. 1941).

Days in relation to abortion	−19	−10	−7	−5	−2	+1	+3
Blood K.B. levels	2·43	24·82	22·88	16·76	3·09	3·48	4·25

The conclusion is advanced tentatively that, in Nutritional Pregnancy Toxaemia, when the level of nutrition has been too low throughout pregnancy or when the level becomes inadequate towards the end of pregnancy, a proportion of the foetuses will die during subsequent starvation and the ketone body level will fall. On the other hand, in Idiopathic Pregnancy Toxaemia and in Starvation Pregnancy Toxaemia, conditions in which prior to the episode of starvation there is no history of inadequate feeding, the foetuses will be alive and there will be, therefore, no tendency for the ketone body level to fall or the glucose level to rise.

The period when the foetus is making its most rapid growth may be suggested as being the period when the nutrition of the mother has the greatest bearing upon the survival time of the foetus during subsequent starvation. Some support for this is given by reports of Clark *et al.* (1943) who switched fat ewes in late pregnancy from a high plane of nutrition to a much lower plane, and found that a high proportion of dead foetuses *in utero* occurred after about two weeks.

Whereas the effects of a rise in the ketone body level upon the maternal economy have been appreciated (*e.g.*, Fisher, 1951: Nabarro, Spencer & Stowers, 1952), the effects upon the foetus are still hypothetical. Scarisbrick & Pugh (unpublished data) have determined in sheep the relationship that is shown between the ketone body level in the maternal arterial circulation and the level in the umbilical vein: as the maternal level rises, the ratio of maternal to foetal ketone bodies increases from about 5:1 below an arterial concentration of 10 mg. per 100 ml. to 3:1 above 30 mg. per 100 ml. The adult ewe is able to tolerate, without displaying any clinical signs, a venous ketone body level of about 7 mg. per 100 ml. (Sampson & Boley, 1940a). For the same level to obtain in the foetus, a maternal arterial level of more than 25 mg. per 100 ml. would have to be reached.

Despite the maternal hypoglycaemia that occurs in Pregnancy Toxaemia (Roderick & Harshfield, 1932: Sampson & Hayden, 1936: Sampson, 1947), Underwood, Curnow & Shier (1943) have reported that, in the foetuses from affected ewes, the lowering of the total reducing sugar values is not significant and the liver glycogen concentration remains within the normal range.

In the above discussion, attention has centred on external factors that have altered the metabolism of the ewe in favour of ketosis, an alteration in which the normally functioning placenta and live foetuses have a determining effect on the outcome. Under other conditions, it might be considered that internal factors alone, including the foetus and the placenta, could play a direct causative rôle in altering the maternal metabolism towards ketosis. However, the report on the ewes experimentally infected with the virus of Enzootic Abortion suggests that, in this condition at least, such a mechanism does not occur. At present, there is no clear-cut evidence in sheep

for suggesting that ketosis accompanies clinical conditions affecting the uterine contents other than those intra-uterine changes that may be considered as secondary to inadequate or abnormal nutrition or prolonged starvation (Stamp & Watt, 1954).

The maternal syndrome of pregnancy is to a large degree controlled by the placenta (see Huggett, 1950). The susceptibility of the pregnant ewe to ketosis may also depend to a degree upon placental function rather than upon the foetus, although the postulated rôle of the foetus is more generally stressed (see Hammond, 1944). It is not possible at present to decide the relative importance of the foetus and the normally acting placenta in allowing for the development of ketosis, although their relative effects upon certain liver constituents have already been studied (Campbell & Kosterlitz, 1949). The foetus *per se* in the cases reported is not necessarily the agent responsible for the maintenance of the ketone body level of the ewe, since in all cases in which foetal death occurred pronounced macroscopic changes also occurred in the placenta.

Summary

1. Jugular blood concentrations of ketone bodies and glucose are given for normal ewes during pregnancy.
2. These are compared with the concentrations found in the following clinical and experimental conditions:
   (a) Six cases of Idiopathic Pregnancy Toxaemia.
   (b) Eight cases of experimentally induced starvation ketosis.
   (c) Eight cases in which intra-uterine pathological changes had occurred.
   (d) Ten cases infected with the virus of Enzootic Abortion.
3. The results are discussed in relation to survival of the foetus in hyperketonaemic conditions of the ewe in late pregnancy.

Acknowledgments.—These cases were seen during the tenure of a Wellcome Research Fellowship of the Animal Health Trust which is gratefully acknowledged. The data relating to fasting ketosis are from ewes used for an experimental investigation financed by the Agricultural Research Council. I have received helpful comments from a number of colleagues, and, in particular, from Dr. J. T. Stamp. I am indebted to Mr. H. E. Bowman for technical assistance.

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Current Literature

ABSTRACTS

Indoor and Outdoor Rearing of Piglets. BARBER, R. S., BRAUDE, R & MITCHELL, K. C. (1953). *Proc. Nutr. Soc.* **12.** 13.

As previous experiments with suckling pigs had shown that piglets reared outdoors on pasture grew better than those reared indoors, an experiment involving 74 litters and extending over two years was carried out to determine some of the reasons for this difference. The litters were reared either: (a) indoors; (b) outdoors on pasture; (c) outdoors on concrete; or (d) indoors with soil in the pen. From the second week onwards all litters were given unrestricted access to a suckling pig meal mixture in a creep. The amount of meal consumed by each litter was determined daily.

The results at weaning indicated that the piglets reared outdoors on pasture consumed more creep meal and grew better than piglets on any of the other three treatments. In addition the mean growth and meal consumption of litters reared indoors with soil was higher than that of litters reared either indoors or outdoors on concrete. These results indicate that both actively growing vegetation and soil are beneficial to young piglets.

J. O. L. K.

Some Important Aspects of Oedema Disease in Swine (Entero-Toxaemia). F. W. SCHOFIELD & J. D. SCHRODER (1954). *Canad. J. comp. Med.* **18.** No. 1.

The authors review the literature on so-called "Oedema disease" of pigs, and conclude that the experiments of Timoney and others in reproducing this disease strongly support the view that the disease is essentially an entero-toxaemia. Diseases which for many years were called "stomach staggers," "auto-intoxication," "pig staggers," etc., are now immediately designated "oedema disease" at *post-mortem* examination if oedema is discovered in any part of the carcase. This is unfortunate and can only end in confusion. The authors suggest the name "Entero-toxaemia of swine" for this oedema disease. The presence of oedema is variable, and it is often absent. When oedematous tissue is examined microscopically there is no evidence of inflammatory reaction such as cell infiltration. Examinations of liver and kidneys reveal changes consistent with a toxaemia, chiefly degenerative in nature. Lymph nodes may be swollen due to congestion, oedema and some haemorrhage. Sometimes the spleen appears congested and with subcapsular haemorrhages. Fresh tissue examination from large and small intestines reveal changes varying from desquamation of epithelium, congestion and oedema, to necrosis of the tips of the villi. Congestion and oedema were the chief lesions seen in the lungs, whilst oedema of the brain and cord with degeneration and necrosis of neurons may be present.

In five cases showing mild symptoms of the disease, the total white cell counts were in the low range, while two severely affected animals had counts below the normal level. Other than evidence of a severe toxaemia, there was no specific change in the tissues which would help to throw light on the exact cause of oedema disease.

The authors believe that two important facts are responsible for the increase in this disease in Ontario: 1. Increased concentrate feeding, more rapid growth, and higher protein level of the feed. 2. The value of the pig has increased, resulting in more veterinary attention.

They believe that here we have an old and rare disease in a somewhat new garb, and on an unprecedented scale.

D. J. A.

ANNUAL REPORT OF THE VETERINARY DEPARTMENT OF THE WESTERN REGION OF NIGERIA, 1952-53

Under a recent administrative reorganisation Nigeria is divided into three autonomous regions and this report deals with the work in the Western Region.

It has been written by H. K. Littlewood, M.R.C.V.S., Assistant Director of Veterinary Services, and he and his staff deserve praise for the work they are carrying out in this vast area of Southern Nigeria with its hot, humid climate, its extensive forests and its dense insect life.

From a veterinary point of view the Western Region is largely new territory and the habit and practices found suitable for the Northern Region (the main cattle area of Nigeria), with its wide open spaces and drier climate can offer no guide to methods of disease control and animal management best suited to their region.

In spite of all the difficulties encountered, good progress is being made. The Western Region, as distinct from the Northern Region, carries no large cattle population, but is subject to constant invasion of disease through the vast herds of slaughter cattle coming to southern markets. It is remarkable therefore that the A.D.V.S. is able to record the absence of any major epizootic disease during the year.

An outbreak of rinderpest in one herd of 180 caused the death of 30 cattle, but these were animals which had been added to the herd since the rest had received lapinised rinderpest vaccine some six months previously. Preventive vaccination is gaining favour with the native stock owners of the region, and altogether over 8,000 cattle received lapinised vaccine during the year. It is pertinent here to draw attention to the fact, although it is not mentioned in the Report, that the high susceptibility of the indigenous stock of the region to rinderpest precludes the use of the goat virus vaccine in general and successful use among the zebu herds elsewhere in Nigeria.

Anthrax spore vaccine was given to 2,633 cattle.

Tuberculosis shows a wide range of incidence throughout the region, but averages 23 per cent. for cattle and 44 per cent. for pigs.

Trypanosomiasis is widespread throughout the region, but indigenous stock are little affected by it. In those few cases showing clinical symptoms antrycide methyl sulphate has given good results.

Helminthiasis is prevalent in young stock, but shows its worst effects in those herds where the only emoluments received by herdsmen is what they can make from the sale of milk and milk products.

Among dogs rabies is a serious disease and the use of Fleury vaccine is being initiated in the region.

Hard pad appeared for the first time in Lagos in epizootic form and babesiosis is common. This latter is successfully treated with phenamidine.

Diseases of Horses

An interesting observation is made regarding the disease known locally as staggers, a fatal condition prevalent among horses in the Lagos Race Club stables. It transpires that native grooms in their treatment of a harmless disease they call " magina " —dung pellets are coated with mucus and streaks of blood—give enemas of a solution of guinea corn, black native soap and the corms of *Gladiolus unguiculatus* and *Antholyza Sadanica*. Whilst most gladiolus corms are not known to be particularly poisonous these two are described as being violent poisons. In one case that came under the personal notice of the Assistant Director the horse developed staggers a few hours after the administration of the enema. Although the Director does not commit himself it is not unlikely that these enemas are the cause of staggers. No further cases have occurred since the grooms were warned against the practice.

Trypanosomiasis is successfully treated with antrycide methyl sulphate and filariasis with tartar emetic.

Heavy losses amongst poultry are reported from some areas, and inoculations against fowl typhoid, cholera, pox and Newcastle disease are being extended. This year these numbered 45,000. Phenothiazine has proved successful in the treatment of helminthiasis.

Animal Industries

The trades in livestock, dried meat, dairy products, hides and skins and leather manufacture are receiving due attention of the department and results are promising.

The improvement in indigenous stock is also receiving attention. Besides preventive measures against disease, castrations, worm treatments, the use of salt licks and better animal management are gaining in popularity and are already showing results.

At Oyo stock farm, where a foundation herd of N'Dama cattle is kept, losses among young stock gave cause for concern. Symptoms shown were rapid loss of condition, alteration in horn structure and emaciation. Blood smears showed *T. Vivax* in several cases. A dietary deficiency is suspected, but a likely possibility is that trypanosomiasis is the direct cause of the condition.

At this farm a good opportunity exists to prove whether the reputed resistance of N'Dama cattle to trypanosome infection is genetic in origin or gained after birth through early exposure to infection. The fact that some at least of the calves of this breed show *T. Vivax* infection would support the opinion that resistance is largely the result of early and continuous exposure to *post-natal* infection.

Schedules are attached to the report to show that over 12,000 clinical treatments were given at the various veterinary centres and over 64,000 preventive inoculations.

W.W.H.

ACCESSIONS TO THE R.C.V.S. LIBRARY

The following publications have been received in the library during the last week.

BJORKMAN, N. Morphological and histochemical studies on the bovine placenta, Uppsala, Almquist and Woksells, 1954.

HOLLUSCHEK, G. Die Tiroler Bracken, Zurich (Inaugural Dissertation) 1952.

HUNT, C. H. *and others*. Effect of certain adsorbents and mineral mixtures on the availability of riboflavin and other B-vitamins in rations. Ohio Agricultural Experiment Station, Research Bulletin No. 748, 1954.

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PANAMERICAN CONGRESS OF VETERINARY MEDICINE. Second, 1954, Summary of communications.

THOMPSON, H. J. Environmental physiology and shelter engineering, with special reference to domestic animals, XXIV. Missouri Agricultural Experiment Station, Research Bulletin 542, 1954.

SCOTTISH VETERINARY INVESTIGATION OFFICER SERVICE

Mr. Walter George Siller, DR. MED. VET. (VIENNA), B.SC., M.R.C.V.S., has been appointed as Assistant Veterinary Investigation Officer in the Veterinary Investigation Department at the West of Scotland Agricultural College, Auchincruive, Ayr. Dr. Siller commenced duties on October 1st.

In our issue of October 9th a note on the appointment of Dr. J. A. A. Watt as Veterinary Investigation Officer at the Edinburgh and East of Scotland College of Agriculture was headed " Ministry of Agriculture;" as our correspondent points out, this too should read " Scottish V.I.O. Service."

"Off the Hook"

Part Two

WE published in our issue of August 21st, by courtesy of the Editor of *The Lancet*, an article from his columns under the above title. The article provoked a reply, and again by the Editor's courtesy we reproduce it herewith.

MY DEAR HAWKE,

You have an urban mind. We have known each other long enough for me to suggest that you may even have a conurban mind. Your highly differentiated cortex has long forgotten the sensation of bare feet on stony paths, and I beseech you to take care not to lose contact with the hard world in which we live. Association pathways that lead only towards the temples of Pure Science are apt to forsake the way of simpler faiths and the common sense of the man in the street. Your championship of the veterinary interests in meat inspection strikes me as being all the more ironical, because if any professional men have both feet firmly planted in the mud and the muck they are the vets ; not the veterinary scientists, mark you, not the veterinary pathologists, not the veterinary administrators, but the honest-to-goodness horse doctors, who are the men you are seeking to shepherd into the bureaucratic pen. I have a feeling that there may be a very different basis for their argument.

So too, the irony does not escape me that my endeavour to show you the light is tinged with urban reflections. You will of course understand that this humble effort is mine alone. I have no brief to plead for the big battalions ; I doubt if I could get a word in edgeways. In fact it is rather awe-inspiring to realise that the policy of the Society of Medical Officers of Health was endorsed, *inter alia*, by the mighty British Medical Association, the (perhaps) mightier Association of Municipal Corporations, and more or less blessed in advance in the high priestly concourse of an Interdepartmental Committee. Do you suggest that they are all out of step but the vets ? Surely even the most fascinating minority causes ought to be kept in perspective ?

Your urban mind seems also to have led you into the error of begging the question of who really supervises the safety of the public water-supplies. Yes, it is very pretty to see the wealth of technical skill, the qualified engineers, the specialist control staffs, and the whole-time plumbers in your handful of county boroughs ; but have you given a thought to the hundreds of small local authorities where the main line of defence is still the grace of God ? I could show you things that would make you never add water to your whisky again. Woe to the medical officer of health who takes a complacently narrow view of his responsibilities. Even you yourself cast doubt upon the best of all possible abattoirs, and your distortion of Voltaire mirrors the asymmetry of the face of England.

I would like to pay tribute to your emphasis that the essential purpose of meat inspection is to safeguard the health of the consumer ; but your red herring about the nature of the job has such a very ancient and fish-like smell that I shall condemn it as unfit for human consumption. How right you are to hint that I have long forgotten the minutiae of the craft ; but I rejoice that the skill of the sanitary inspectors on my staff achieves the essential purpose with economy and commendable efficiency. Perhaps they have the advantage of *post-mortem* facilities denied to your orderlies doing F.F.I., and no doubt your mortuary porter could command a fat salary as a meat inspector in some cannibal community. The means must be judged by the end. I dare say that it would improve the efficiency of general practice to have every patient seen by a consultant psychiatrist while the G.P. devoted more time to keeping his records up to date. What you do not realise is that, although we can already get a veterinary second opinion on a carcase if we are in serious doubt, the consumer will always elect to be given the benefit of the doubt if he has to eat the specimen of such scientific interest. We believe that is how it should be.

Those doubtful carcases are so few and far between that they dwindle into insignificance beside the meat which is undeniably unfit, and they almost disappear from sight altogether when you look and see what proportion of the total killing is condemned. A glance at the records of our last 60,000 animals shows that we condemned only about 1 per cent. of the fatstock that came from the auction marts. We keep separate records for the casualty slaughter of the ailing crocks when Nature fails to beat the gun, and even those pitiful creatures seldom show more than a fifth for the waste-contractor's wagon. You cannot make an issue out of such negligible loss. It is a reasonable premium to pay for the customers' insurance.

Just ponder for a moment, my dear Hawke, on the main causes for our condemning that meat. Whole carcases of beef lost with enteritis and emaciation, oedema and ill set. Portions discarded for abscesses and parasites, heads and tongues for actinomycosis. Whole sheep for emaciation and oedema, their livers packed with parasites. Pigs with inflammatory lesions. Add to that list the odd hydatid, the cysticercus, and the poor little bobby calves, and you have a lurid rival to your own *post-mortem*-room table. Now suppose you go out and tell the man in the street that you would like to save some of this small percentage of meat for his dinner—only the slightly diseased and the doubtful bits of course—and see where he will tell you to go. No, Sir, he won't swallow that pill, not even if you get a vet to blow it down his gullet.

I am sorry to have to keep harping on your urban mind, for I am sure that some of your large city abattoirs are most admirably run under the supervision of a veterinary member of the medical officer of health's staff ; but I cannot agree with your opinion that " to extend this to the country as a whole offers no great difficulty." Quite frankly I do not think it is a practical proposition in these days. If you read your *Hansard* last April you will remember that the Minister of Food spoke on the second reading of the Slaughterhouse Bill. He said that before the war there were about 12,000 licensed private slaughterhouses in this country, and that for the past 14 years, under the Ministry's control of the trade, we had managed with only 600. I cannot help doubting whether it would have been possible to have had veterinary supervision of even these 600, but

I am quite sure that the lifting of controls has completely altered the position. You may have seen the answer of the Parliamentary Secretary to the Ministry of Food on July 19th, when he disclosed that by the end of June 3,360 private slaughterhouses had already been licensed in addition to the 200 public abattoirs. How are you going to get round 3,500 slaughterhouses scattered all over the country, working at the oddest times of day, both winter and summer, with none of your fancy cold chambers for detention, and none of your laboratory incubators for research? You forget this is rural England that feeds you. Your banner seems to have the hammer without the sickle.

Shame on the name of Great Harry that you should forswear the steak. Every subject's duty is the King's; but every subject's soul is his own. With the scars of Crispin Day yet barely healed upon your arms, how can you claim that it matters little who rules the men of England? Have the drums of Dorset not sounded in your ears? Can you not distinguish between the local councillor who does your bidding at the peril of losing his seat and the Civil Servant whose bidding you obey at the peril of losing your head? Shame that you are bored by a constitutional issue of such moment. Come, come, my dear fellow, pull yourself together, and try and find just one thing that the Ministry of Agriculture and Fisheries have done better than local enterprise. Look what happened when they took over milk and dairies from the local authorities; we countrymen have not stopped laughing yet. Why, they cannot even put salt on the tails of the starlings in their own backyard.

I well remember those 14 years when the subject's meat, as well as his duty, was the King's. Those occasional long-winded arguments with the Ministry of Food over a single doubtful carcase while truckloads of zoned meat went bad in railway sidings. I am not convinced that the Civil Servant is the best person to teach a butcher how to sell meat, any more than to teach a grandmother how to suck eggs at controlled prices. Protein never came out of procrastination. And what is your alternative? Staff the 3,500 slaughterhouses with part-time veterinary surgeons in private practice, and so introduce the element of divided loyalty? To whom do you think the benefit of the doubt would be given? The well-known fatstock farmer who provides the bread and butter, or the unknown consumer who merely pays the rates? I do not doubt for one moment the personal integrity of our veterinary colleagues, but I say that it is a constitutionally wrong principle to make them judges in their own cause. At least that is how many a man in the street would look at it.

Have you ever heard of the little bureaucratic sport of empire-building? It is an interesting parlour game evolved during the managerial revolution of our times. The cheer-leaders of any professional section that can whip up enough interest, or self-interest, throw in the ball by declaring that they are the Chosen People—the experts who should lead the world towards salvation. Their battle-cry is culled from some anthology of altruistic phrases to distract attention from the price of the feathers to line nests and stuff bedding. It would be nice to think that scientific enthusiasm and not vested interest was the driving force in many of the current campaigns, but the cheer-leaders' cries have a hollow ring on the field of battle; it is only the echoes that sound so sweet as they float up towards the casements of ivory towers.

Those famous 14 years certainly taught the Nation how not to live by meat alone, and it must have occurred to you that meat inspection is only one section of the whole range of food hygiene supervision. I dare say that other specialties could conjure up a case for chiselling off more corners from the foundation stones of the public-health edifice, but either they haven't thought of it, or they realise how ridiculous it would be to undermine the public confidence. The present service is undeniably efficient. The proof of the meat pudding is in the eating. The cost to the country, and that means to the consumer, is quite reasonable. What do you think it would cost to add the vets on as well? My dear Hawke, there is such a thing as the law of diminishing returns. We can continue this argument next Sunday, and I shall feel quite confident that your saddle of mutton has been well inspected before your butcher delivered it, so we can concentrate our attention upon its aesthetic qualities. We will be round at a quarter to one.

Yours sincerely

TOM COBBLEIGH.

DEMONSTRATIONS BY THE UNIVERSITY OF BRISTOL

The following four demonstrations at Torquay were on view throughout the Congress. These illustrated:—

Urinary Calculi in the Dog. Showing radiographs both with and without the use of contrast-media and the actual specimens after surgical removal.

Rubber Jaw in the Dog. Here radiographs of an affected skull were shown in comparison with a normal skull and photographs illustrated the accompanying kidney lesions.

Vitamin A Deficiency in the Bovine. Illustrating the lesions of avitaminosis A, particularly the changes in endochondral bone growth which result in doming of the skull and lengthening and constriction of the optic nerve, leading to blindness. Specimens indicated the effects of reproduction of the disease by dietary means.

Listerellosis. The main cultural characteristics of the organism were demonstrated and microphotographs depicted the lesions seen in the central nervous system of affected calves and lambs.

IAN McMASTER FELLOWSHIP

Mr. Allan E. Pierce, M.SC., F.R.C.V.S., D.V.S.M., of the Institute of Animal Physiology, Cambridge, has recently been granted an Ian McMaster Fellowship by the Commonwealth Scientific and Industrial Research Organisation in Australia. Mr. Pierce's Fellowship is tenable at the McMaster Institute, Sydney, where he will spend a year studying protozoa of veterinary importance. Mr. Pierce leaves for Australia in the near future.

News and Comment

MINISTER OF AGRICULTURE AT SAFFRON WALDEN

The Minister of Agriculture, the Rt. Hon. D. Heathcoat Amory, M.P., made his first major public speech since his appointment when he addressed a meeting at Saffron Walden, Essex, on October 12th. The Minister assured his audience that there would be no sudden or frequent changes in the Government's policy towards agriculture, but that he would maintain the policies developed by his predecessor. These aimed at increased production, greater efficiency, and freedom without loss of stability.

Turning to the marketing of fatstock, the Minister said that although the new system had had its growing pains, it was working well, and the chaos that had been forecast by its critics had not materialised. He considered that the present difficulties in the marketing of bacon pigs originated in the disparity between bacon and pork weight prices. Because of this disparity too many pigs had been kept to bacon weight, and the market had been flooded with overweight pigs. He denied that there were too many pigs in the country although too many had been offered to the factories at the end of the summer. Even when they were working to full capacity, the factories could only produce half the bacon we consumed and the remainder had to be imported. Thus our importations were not related to the present difficulties, which appeared to be part of the " teething trouble " of re-learning the working of a free market.

Most of the numerous questions which were put to the Minister were concerned with the marketing of pigs, eggs and cereals.

Mr. R. A. Butler, the Chancellor of the Exchequer, who is the Member for the Saffron Walden Division, was also present, and spoke briefly of agriculture's need for stability combined with efficiency. E. A. G.

VETERINARY SECTION OF UFAW

The Annual General Meeting of the Veterinary Section of UFAW was held at Knuston Hall, Northamptonshire, on September 19th.

The meeting was addressed by Professor W. I. B. Beveridge of the Department of Animal Pathology, University of Cambridge.

He said that most of the acute, highly fatal infectious diseases of domestic animals were now either eradicated from this country or held in check. There remained, however, a number of chronic, low-grade infectious diseases which continued adversely to affect the health and productivity of farm animals, although, since they did not cause much mortality, they did not stimulate the farmer to taking vigorous action against them.

Professor Beveridge spoke in some detail about two chronic diseases of which he had considerable personal experience, namely, foot-rot of sheep and virus pneumonia of pigs. After describing the symptoms and lesions of foot-rot, he said that this disease was now regarded in Australia and New Zealand as susceptible to eradication by stamping out just as foot-and-mouth disease and swine fever are. The old idea that the disease was produced by damp conditions in the pasture had been superseded by the concept of it as a specific infectious disease.

In order to eradicate foot-rot all cases of the disease must be properly treated and cured. However, some animals, even though not showing lameness, might carry the infection in small chronic lesions in their feet. These carriers must be detected and either adequately treated or eliminated from the flock. Sheep with healthy feet placed on pasture which had been free from infected sheep for at least one week would thenceforward remain free of the disease, if it were not re-introduced. A film illustrating the treatment and eradication of foot-rot in Australia was shown.

Virus pneumonia of pigs had been under investigation at Cambridge for several years. Recently a series of experiments had been undertaken which showed that pigs free from this very widespread disease grew more rapidly than affected pigs and converted food much more efficiently into pig meat. If this disease were eradicated from the country many millions of pounds could be saved on pig food while producing the same amount of bacon and pork.

Professor Beveridge said that his department had developed what he thought was a new approach to the study of infectious disease. Experiments similar to those just mentioned in measuring the effect of virus pneumonia on the efficiency of food conversion were now being undertaken with other common infections in pigs. These experiments brought out, to an extent not previously appreciated, the economic importance of maintaining animals in the highest possible state of health.

The meeting next considered the use of myxomatosis vaccine, and other similar agents, by laymen. While appreciating the problems involved, the members present felt that unskilled use of vaccines was to be discouraged in view of the possibility of causing animals unnecessary distress.

The following officers were elected for 1954-55: President—Dr. W. R. Wooldridge, M.SC., M.R.C.V.S.; President-Elect—Dr. N. S. Barron, M.R.C.V.S.; Hon. Secretary—Mr. C. Schwartz, M.R.C.V.S.; Student Chairman—Mr. K. R. G. Evans (University of Liverpool); General Secretary—Miss M. P. Williams, B.SC. (ECON.).

CONGRESS FILMS

Films were shown at the Congress on the morning of Monday, September 20th, and on Tuesday and Thursday afternoons. The films shown included a series prepared at the University of Bristol Veterinary Laboratory for teaching purposes. These included a film showing the technique of semen collection in the boar using a dummy sow and a comparison with natural service. A series of short clinical films were also shown on Tetanus in the bovine and ovine,

Aujesky's Disease in the pig, Listerellosis in a calf, Spastic hind leg lameness in Friesian calves, Perosis in the fowl and Swayback in lambs. A short film taken at Bristol illustrated certain aspects of the operation of caesarean section in the cow, ewe, sow and bitch and this was followed by a film on human caesarean section, kindly loaned by Parke Davis & Co.

Other films included: Chronic Phalaris Staggers in Sheep prepared by C.S.I.R.O. and kindly made available through the Chief Scientific Liaison Officer, Australia House. Phagocytosis prepared by Parke Davis & Co. The Story of Antrycide, obtained from the I.C.I. Film Library.

On the afternoon of Thursday two films on bee-keeping were also shown and proved of considerable interest, they were: The Dance of the Bees, and Artificial Insemination in the Queen Bee.

THE PETER WILSON LECTURES

On October 12th, 13th and 14th, under the Peter Wilson Scholarship Fund, Professor H. C. Bendixen, Professor of Special Pathology and Therapeutics at the Royal Veterinary and Agricultural College, Copenhagen, delivered a series of lectures at the Royal (Dick) School of Veterinary Studies, Edinburgh, under the chairmanship of Professor G. F. Boddie. His subjects were: "Experiences in Bovine Brucellosis and Mastitis with special regard to Eradication and Sanitation Measures" and "Experiences in Diseases of Young Pigs in the Danish Pig Industry."

In introducing the lecturer, Professor Boddie said: "Before introducing Professor Bendixen, it is only appropriate that I should say something of the man whose generosity has made it possible for us to have these lectures. Mr. Peter Wilson qualified from the Royal (Dick) Veterinary College in 1893 and was for many years a most successful veterinary practitioner in Lanark. Those of us who were fortunate enough to know him held him in high esteem both as a man and as a great veterinary clinician. Mr. Wilson served on the Council of the Royal College of Veterinary Surgeons, and, for a considerable number of years, he was a member of the Board of Management of the Royal (Dick) Veterinary College. Mr. Wilson always took a great interest in his old college and when he died he left his estate to the College to found the Peter Wilson Scholarship which has two purposes, first, to enable the holder to carry out research, and, secondly, every fourth or fifth year, to provide special lectures of which this is the first.

"Professor Bendixen is Professor of Special Pathology and Therapeutics in the Royal Veterinary and Agricultural College in Copenhagen. Described as a disciple of Professor Bang, a name known throughout the world for his work on brucellosis, Professor Bendixen succeeded to the Chair in Copenhagen on the death of Professor Bang.

"He is an Honorary Associate of the Royal College of Veterinary Surgeons. This is an honour not lightly granted by the Royal College and the award is an indication of the international reputation that Professor Bendixen has achieved.

"At the 14th International Veterinary Congress held in London in 1949, Professor Bendixen delivered the address at one of the plenary sessions; the title of his address was "The Veterinary Profession's Contribution to the World's Milk Supply." Those of us who heard that address realised that we were listening to a man master of his subject and I have no hesitation in saying that address was far and away the most impressive of those given at that Congress.

"I have had the great privilege of knowing our distinguished guest personally and I can endorse the words of the President of the Royal College of Veterinary Surgeons when presenting the Honorary Associateship to Professor Bendixen that he has done scientific work of outstanding merit; he is held in the highest esteem in the United Kingdom and has done much to foster cordial relations between Britain and Denmark. I know of no one better suited to give the first series of Peter Wilson Lectures." Professor Boddie then called on Professor Bendixen to deliver his first lecture.

The first lecture, entitled "Experiences in Bovine Brucellosis and Mastitis with special regard to Eradication and Sanitation Measures," surveyed the disease position in Danish dairy herds in relation, particularly, to tuberculosis, brucellosis and mastitis. The speaker indicated that the eradication of bovine tuberculosis in Denmark was virtually approaching completion. Very substantial progress had been made in the eradication of brucellosis and it seemed that the day was not far distant when this disease would be eradicated from Denmark. An interesting point was the rapidly diminishing use of vaccination. The mastitis problem being more complex promised to present greater difficulty. Professor Bendixen emphasised that, in any attempt to control mastitis, an important factor was the hygienic measures taken in the dairy herd.

The second and third lectures dealt with diseases of young pigs in Denmark. Professor Bendixen pointed out that swine fever had not occurred in Denmark since 1932 and salmonellosis in pigs had not been diagnosed since 1936. Bovine tuberculosis of pigs was a disease of the past. Swine erysipelas, however, still proves troublesome. Statistics show that there has been a considerable variation in the pig population in Denmark and that there is a close correlation between the population density and the prevalence of diseases, especially in young pigs.

The lecturer then described the condition known as anophthalmos in which the globe of the eye and the optic nerves fail to develop. This condition, he had been able to show, was due to an insufficient supply of vitamin A during the period of gestation. He then dealt with the problem of intestinal disturbance of a catarrhal type and said that the most successful treatment had been oral administration of an antibiotic, particularly, aureomycin.

The third lecture dealt with diseases of the respiratory organs. A number of references were made to enzootic pneumonia, which he thought was prob-

ably identical with virus pneumonia described in other parts of the world. Then followed a detailed description of atrophic rhinitis as experienced in Denmark.

The lectures, which were illustrated with lantern slides and a cinematograph film, concluded with a description of enzootic paresis of pigs. Professor Bendixen replied to questions and an interesting discussion followed.

Professor Mitchell, speaking on behalf of the audience, who had greatly appreciated these lectures, conveyed to Professor Bendixen their gratitude for coming to this country and giving this series of lectures. He emphasised the friendly relations that had always prevailed between the veterinary profession in Denmark and in this country. These lectures had still further fostered these relations.

It is hoped to publish either the complete lectures, or a full précis of them in forthcoming issues of THE RECORD.

IMPORTATION OF DOCKED HORSES

Section 2 of the Docking and Nicking of Horses Act, 1949, comes into operation on January 1st, 1955. From that date it will be an offence for any docked horse—stallion, gelding, colt, mare, filly, pony, mule or hinny—coming from a place outside the United Kingdom to be landed in Great Britain from a ship or aircraft unless the landing is permitted by an Officer of Customs and Excise or is licensed by the Minister of Agriculture and Fisheries or the Secretary of State for Scotland.

An officer of Customs and Excise may not permit the landing of a docked horse unless he is satisfied that it will be exported from Great Britain as soon as practicable. The Minister (or the Secretary of State) may not grant a licence to land a docked horse unless he is satisfied that it is intended to use the horse for breeding purposes.

Forms of application for licences may be obtained from the Ministry of Agriculture and Fisheries, Whitehall Place, London, S.W.1., or the Department of Agriculture for Scotland, Government Offices, Saughton, Edinburgh, 11.

TUBERCULOSIS IN CATTLE

At a Sessional Meeting of the Royal Sanitary Institute in Aberystwyth on Friday, October 8th, Mr. R. Dudlyke, M.R.C.V.S., Divisional Veterinary Officer of the Ministry of Agriculture and Fisheries, gave a paper on "The Attested Herds Scheme and Its Relation to the Eradication of Bovine Tuberculosis." The meeting, which was attended by representatives of local authorities and other bodies from within a radius of 50 miles, was presided over by Mr. Donald A. Goldfinch, F.R.I.B.A., a member of the Council of the Royal Sanitary Institute.

Mr. Dudlyke mentioned points from the Tuberculosis Order, and then went on to trace the history and development of the Tuberculosis Attested Herds Scheme as a national undertaking. South Wales, he recalled, had been an attested area since April, 1953, and he concluded with the reassuring statement that so far as the great majority of carcases in this area was concerned they had been found, on examination, to be suitable for human consumption, as the disease had been localised. That was because the animals had been tuberculin tested at frequent intervals and the disease detected at a very early stage. The tuberculin testing of cattle was the only way by which the disease could be eliminated from our herds.

COMING EVENTS

Oct. 28th.—General Meeting of the Herts and Beds Division, B.V.A., at 70, Holywell Hill, St. Albans, 7.30 p.m.

Oct. 28th.—General Meeting of the Society of Practising Veterinary Surgeons, B.V.A., at the Grand Hotel, Peterborough, 2.30 p.m.

Oct. 29th.—Informal Dinner for the Lancashire Division, B.V.A., at the Blue Cap Restaurant, Sandiway, Cheshire, 7.15 p.m.

Oct. 29th.—Meeting of the Yorkshire Division, B.V.A., in the Hotel Metropole, King Street, Leeds, 1, 2.30 p.m.

Oct. 29th.—Ordinary General Meeting of The Society for the Study of Animal Breeding at the Wellcome Research Institute, 183-193, Euston Road, London, N.W.1, 11.30 a.m.

Nov. 2nd.—General Meeting of the Scottish Metropolitan Division, B.V.A., in the Royal (Dick) School of Veterinary Studies, Edinburgh, 2.30 p.m.

Nov. 3rd.—Annual General Meeting of the West of Scotland Division, B.V.A., in the University of Glasgow Veterinary School, 83, Buccleuch Street, Glasgow, 2.30 p.m.

Nov. 4th.—General Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, N.W.1, 5.30 p.m.

Nov. 10th.—Meeting of the Southern Counties Division, B.V.A., at the Red Lion Hotel, Salisbury, 6.30 p.m.

Nov. 16th & 17th.—B.V.A. Conference on the Feeding of Farm Livestock for Health and Production in the South Hall, Victoria Halls, Bloomsbury Square, London, W.C.1. Admission by ticket only. Please apply not later than November 8th, on form published with issue of October 9th.

Dec. 3rd.—Annual Dinner and Dance of the North Wales Division, B.V.A., in the Imperial Hotel, Llandudno.

NOVEMBER MEETINGS OF COMMITTEES AND COUNCIL OF THE B.V.A.

AT NO. 7, MANSFIELD STREET, W.1.

Wednesday, November 3rd.—

11 a.m. Veterinary State Medicine Committee.
2.30 p.m. Parliamentary & Public Relations Committee.
4 p.m. Home Appointments Committee.

Thursday, November 4th.—

10.30 a.m. Organising Committee.
12 noon Finance Sub-committee.
2 p.m. General Purposes & Finance Committee.

AT CONNAUGHT ROOMS, GREAT QUEEN STREET, W.C.1.

Friday, November 5th.—

10.30 a.m. Council Meeting.

R.C.V.S. EXAMINATIONS

Friday, November 5th, 1954. Pharmacology etc. Examination (Revised Syllabus). Written (London and Dublin).

Monday, November 8th, 1954. Pharmacology examinations (Practical and Orals commence).

Wednesday, November 10th, 1954. Animal Management Examination tour commences.

Thursday, December 9th, 1954. M.R.C.V.S. Written Examinations.

Friday, December 10th, 1954. M.R.C.V.S. Written Examinations.

Monday, December 13th, 1954. M.R.C.V.S. Practical and Orals commence (Panels " A " and " B ").

PERSONAL

Births

DAVIDSON.—On October 15th, 1954, at Farnborough Hospital, Kent, to Wendy (*née* Hood) wife of John B. Davidson, M.R.C.V.S., the gift of a son.

JENNER.—On October 10th, 1954, to Eilan, wife of F. H. Jenner, B.SC., M.R.C.V.S., of Cedar Cottage, Warren Farm, Streatley, Berks, a daughter, Frances Eilan.

WALKER.—On October 9th, 1954, at Princess Mary Maternity Hospital, Newcastle upon Tyne, to Janette (*née* Allan), wife of A. I. T. Walker, B.SC., M.R.C.V.S., of 7, Joicey Road, Gateshead, Co. Durham, a daughter, Sarah Jane.

Marriage

HANDS—ROGERS.—The wedding took place on October 2nd, 1954, at Westwood Heath Church, between Roy R. Hands, B.SC., M.R.C.V.S., only son of Mr. & Mrs. R. Hands, of 19, Eastern Green Road, Coventry, and Joan G. Rogers, only daughter of Mr. & Mrs. W. E. Rogers, of 290, Westwood Heath Road, Westwood Heath, Coventry.

R.C.V.S. Obituary

TODD, Arthur George, C.B.E., D.S.O. (Col. A.V.S. retd.), of Amulree, Fleet, Hants. Graduated New Edinburgh, May 31st, 1892. Died October 17th, 1954.

A. G. TODD, C.B.E., D.S.O., M.R.C.V.S.

Colonel A. G. Todd, a Retired Officer of the Royal Army Veterinary Corps, died at his home, Amulree, Fleet, Hants, on October 17th.

The cremation took place at Woking, on October 20th, 1954, at 10.30 a.m. and the Corps provided a Bearer Party. Brigadier A. G. Heveningham, C.B.E., Director Army Veterinary and Remount Services, and Major I. S. Maclennan, R.A.V.C., attended as representing the Colonel Commandant, Officers, and All Ranks of the Royal Army Veterinary Corps.

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CROWTHER. Margaret Estelle, wife of A. T. Crowther, M.R.C.V.S., formerly of Deal, Kent. Died at Tonbridge on October 9th, 1954. She leaves three sons: J. R. Crowther, of the Anglo-Iranian Oil Company; R. W. Crowther, B.SC., M.R.C.V.S.; and D. A. Crowther, B.SC., A.M.BRIT.I.R.E.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax:

Essex. Lofts Hall, Elmdon, Saffron Walden (Oct. 13).
Kirkcudbright. South Park Farm, Borgue (Oct. 13).
Lanark. Eastside Farm, Carluke (Oct. 11).
Lincs. Marsh Yard, Benington, Boston (Oct. 13).
Midlothian. Costerton Farm, Blackshiels (Oct 11).
Northumberland. Cold Cotes Farm, Steading Allendale, Hexham (Oct. 12).
Salop. Hen Barns, West Felton, Oswestry (Oct. 13).
Sussex. New Farm, Thorney Road, Emsworth (Oct. 12).
Yorks. Helwith Farm, Marske, Richmond; Knackers Yard, New Lane, Huntington (Oct. 12).

Fowl Pest:

Lincs. 58, and 60, North Street, Crowland, Peterborough (Oct. 13).
Sussex. Hazel Farm Poultry Specialists, Eastergate Lane, Eastergate, Chichester (Oct. 10).

Swine Fever:

Denbighs. Piggeries, Pentrebychan Woods, Rhos, Wrexham (Oct. 16).
Derbys. Bawshaw Farm, Dronfield, Sheffield (Oct. 16).
Devon. Skinners Ash Farm, Fenny Bridges, Honiton, Ottery St. Mary (Oct. 16).
*Glouc*s. Home Farm, Tockington (Oct. 13).
Herts. Manor Farm, Barley, Royston (Oct. 13).
Hunts. 60, Great North Road, Buckden, Huntingdon (Oct. 14).
Lancs. 47, Meamygate, Bamber Bridge, Preston (Oct. 16).
Lincs. Moor Farm, Stapleford, Lincoln (Oct. 12); Wyggeston Farm, Foston, Grantham (Oct. 16).
Middx. Hall Farm, Dennis Lane, Stanmore (Oct. 11).

Staffs. Buttermilk Hill, Hollington, Stoke-on-Trent; Lower Loxley Farm, Loxley, Uttoxeter (Oct. 11).

Yorks. Park Farm, Castle Howard (Oct. 11).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

A LEGITIMATE GRIEVANCE

Sir,—I welcome the recent correspondence under the above heading, which has appeared in these columns, and am grateful for the outspoken remarks of the immediate Past President at Torquay upon the same subject. In the past I have been a supporter of the closest collaboration with ethically minded societies, but conditions have changed, and views must change with them. As the Past President said, these Welfare Societies are now " big business," forced to compete one with another, and so possibly devote more time and money to propaganda than to animal welfare, while using the Profession as one of the pawns in the game. Their combined income must be astronomical; it is given by voluntary contribution from the public, which has a perfect right to know whether or not funds, so supplied, are being used to the best advantage.

Recent reports in the daily papers suggest that there is at least some section of the public which feels that all may not be well. It is further worthy of note, that on at least two occasions in recent years, when a Government committee has considered the activities of the Welfare Societies the latter have not come out too well.

Unfortunately, the Welfare Societies are so surrounded by and built up on sentiment that it is difficult for the ordinary member of the public to form a detached view of them. It may well be argued that members of the Profession are not disinterested parties and are, therefore, not competent to express opinions of the work and management of these bodies as a whole. But at least we may claim to have great experience of the clinic system and to be well qualified to offer an objective opinion upon it.

It seems that it is high time the Profession went into this whole question and developed a policy that is based upon reality and duty, *i.e.* how may our profession ensure that the animal owning public gets the best veterinary attention for their animals?

The term " clinic " is applied to every form of service from the weekly visit of a caravan, to the large city clinic which is open for several hours each day. Basically, however, all clinics work on the " hours of attendance " system and few, if any, can visit patients. In other words, they cannot pretend to offer a 24 hour per day, seven day week emergency service. Again, few clinics have facilities for major surgical work and hospitalisation. Thirdly, it is open to question whether the crowded waiting room of a clinic is a suitable place for an animal affected with an infectious or a contagious disease.

What then is left? What type of case does the average clinic deal with? The answer is, generally the minor cases—skins, ears, nails, worms, etc. The type of case for which the veterinary surgeon's fees would be moderate, in many cases less than the owners put in the boxes at the " poor people's clinics." Anyway, where and who are the poor people? If we accept the above as being substantially justified, what then is the purpose of these clinics? The relief of suffering animals, or propaganda for the Society running them? What is one to say, particularly where one finds as many as four different clinics competing for " custom " in the area of one town or city?

In plain language, the clinic system is used as a measure of advertisement. The field of animal welfare is sufficiently wide that the Societies concerned could more than justify their existence in other spheres than the running of clinics. I honestly believe there are very, very few animals which fail to receive needed attention on financial grounds, but a lot fail to receive it on account of apathy or ignorance. Recently an official of one of the Welfare Societies said to me: " The . . . . .'s can afford your fee, they are too . . . . . miserable to be bothered with it."

It is in the interest of the public that an adequate number of veterinary surgeons be installed up and down the country to give service to the public. This can only be achieved by making it possible for them to earn a reasonable living. The Government accept this view (hence the Veterinary Surgeons Act 1948), and should therefore enquire promptly into the activities of organisations which, by virtue of preying upon the public sentiment and spending vast sums on advertisement, can seriously compete with legitimate practice.

Yours faithfully,

L. GUY ANDERSON.

49, Cambridge Street,
Aylesbury, Bucks.

October 11th, 1954.

* * *

Sir,—My Latin, like, alas, so many of my accomplishments of years gone by, has become a little vague, but I believe that our professional motto may be very freely translated to read " united we stand, divided we fall."

I am not very seriously interested in small-animal practice, nor have I yet suffered at the hands of the Animal Welfare Societies, but I am aware that these societies have made and are making serious inroads into the livelihood of many of my professional brethren.

Your excerpts from the original issue of THE VETERINARY RECORD and Mr. Earnshaw's letter encourage me to hope that we as a profession may yet make a concerted, vigorous and quite outspoken effort to stake our claim in the scheme of things.

It is apparent that during the past 50 years a great and strange change has come upon us in our behaviour both as individuals and as a profession. In these days it is looked upon as ill-bred, abnormal and quite unprofessional to hold and express views strongly. Professionally it is the thing to be silent in the face of opposition, to murmur smooth clichés in reply to controversy and to starve rather than to fight.

I wonder if I can goad a goodly number of the profession who have suffered at the hands of these Animal Welfare organisations to break into print just this once, to realise that we are, collectively, the Royal College of Veterinary Surgeons, and to make some concerted effort to take appropriate counter-action while there still remains something worth fighting for.

Yours faithfully

J. P. PICKERING,

Orchard House, Priestpopple,
Hexham, Northumberland.

November 9th, 1954.

THE FORGOTTEN HORSE

Sir,—Approximately 2,000 years ago the Romans conquered Britain. At that time, in the words of their own historians, they were known to "seek eagerly after the British horse, as being without equal." To-day the same is true of our horses and the whole world now seeks eagerly after them. In fact it is generally recognised that the thoroughbred in most countries throughout the world deteriorates rapidly without a fresh infusion of British blood every few generations.

Included with my copy of THE VETERINARY RECORD dated October 9th is a form I am invited to fill up if I wish to sit in Bloomsbury Square on November 16th and 17th listening to a variety of lectures on the all important subject of animal nutrition. The problems of feeding livestock from pregnant cows to turkey chicks are all dealt with but no word about the horse is included. One is prepared to admit, in this mechanical age, that the horse does not now occupy the supreme position he once held on the English farm, but have we no stud farms, with their brood mares, foals, yearlings and stallions? Are not our pastures being improved by intelligent seeding and the health and fertility of our bloodstock benefiting by the supplementary feeding of vitamins and antibiotic by-products? Professor Miller could tell us much of these matters.

In the present circumstances, however, I must presumably continue to gather my knowledge of modern advances in these subjects from articles published in non-professional periodicals of various nationalities.

Valete equas Britannicus.

Yours faithfully,

Mayfields, A. E. FOSTER,
Kingswood, Surrey.

October 11th, 1954.

WILLIAM HUNTING

Sir,—I like THE RECORD in its new autumn outfit. It is my regret that we cannot afford its warm, friendly colour for every edition.

Unlike Major Hancock I did not receive 2s. 6d. from Hunting when I was at an impressionable age and I am glad to see his bearded face disappear from the front of our journal. None of my friends wears a beard to-day, and if one did I would be embarrassed in his company.

To those who are always carping at the low status of the profession I would point out that we seem to have discarded an unknown founder for a well-known patron. Surely this is progress?

Yours faithfully,

6, Benett Close, J. DEANS RANKIN,
Newbury, Berkshire.

October 11th, 1954.

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Sir,—Please allow me to congratulate Mr. Hancock for his letter taking to task the person or persons responsible for the horrible haemorrhagic horror perpetrated on our RECORD. By giving its cover this "stain" its beauty was not enhanced, but to rob it of the very fine portrait of its handsome founder was indeed a wanton act. I had intended writing you on the first issue but held my hand, thinking it might be just a "Congress" edition.

Mr. Hunting was the son of a veterinary surgeon and was born at South Hetton in this county of Durham.

Please put him back on his pedestal.

Yours faithfully,

H. S. ELPHICK,

36, Woodvale Road,
Darlington.

October 10th, 1954.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period		Anthrax	Atrophic Rhinitis	Foot-and-mouth	Fowl Pest	Sheep Scab	Swine Fever
1st to 15th September, 1954		12	1	—	3	—	42
Corresponding period in	1953	13	—	—	14	—	99
	1952	73	—	8	6	—	28
	1951	12	—	—	4	—	77
1st January to 15th September, 1954		205	4	12	594	—	1,136
Corresponding period in	1953	490	—	28	722	—	2,220
	1952	560	—	486	157	1	672
	1951	311	—	28	599	4	832